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Conditions in the present; possibilities and problems in the future.
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From the Varangians to the Greeks. The Experimental Voyage with the "Aifur" in 1994-1996

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During the years 1994 to 1996, the reconstructed Swedish Viking Age ship "Aifur" made a voyage from Sigtuna at the lake Mälar in Sweden to Kherson at the Black Sea in the Ukraine. The venture, called "Expedition Holmgård" was the first modern Scandinavian effort to sail the road "From the Varangians to the Greeks", mentioned in the Russian Primary Chronicle.

"There is a road from the Varangians to the Greeks. From the Greeks it runs along the Dnepr by portage to the Lovat. Lovat flows into the great lake Ilmen and from there flows the Volkhov which descends into the great lake Nevo (Ladoga). That lake empties in the Varangian Sea" (Kerner 1946:11; Nestors krønike 1983).

The "Aifur" is 9 meters long, 2,2 m wide and its hull weighs approx. 600 kgs. Its construction combines features from different Baltic area Viking Age archaeological boats. It was built as a typical small cargo ship, suitable for all-round use on rivers, lakes and other reasonably sheltered waters. It carried a 19 square-meter sail, its rigging being inspired by the Gotlandic Iron Age picture-stones. It was manned by a crew of nine (Edberg 1994, 1995, 1996).

The vessel is named after the Aifur (Aefor) cataract in the Dnepr, described with its Old Swedish name by the Byzantine emperor Constantin VII Porphyrogenitos in about AD 950. This same waterfall is also mentioned in one Swedish runic inscription from the late 900's, erected in memory of a certain Ravn who was buried out there. (The Dnepr falls disappeared in the 1920's when the big hydroelectric dams in the Dnepr were constructed.) "Holmgård" was the Scandinavian name for Novgorod, which was then Ryurikovo Gorodishche.

The Expedition was a co-operative project, carried out by an association of ten people who owned the boat. The present author was responsible for the archaeological aspects of the Expedition, aided by an advisory committee, which included professors Bo Gräslund and Erik Nylén. On the Russian side, professor E.N. Nosov and Dr. P.E. Sorokin were instrumental in assuring the Expedition's success.

The Russian Primary Chronicle seems to be the only historical source for the Dnepr-Lovat Road. However, there is little doubt about its existence as an artery for the Rus princes and the Rus state, of which Kiev, Smolensk and Novgorod formed a very important geopolitical axis. Some Viking Age Scandinavian presence in the region is confirmed both by written sources and the archaeological evidence, but it remains questionable whether Scandinavians in any numbers ever travelled the Road in transit to Byzantium.

The geographical situation of the southern part of the Road is quite obvious. The Dnepr between Smolensk and the Black Sea was a huge, wide river. Two big problems existed, and have been much discussed by scholars: the dangerous rapids (of which Aefor/Aifur was one) situated between today's cities of Dnepropetrovsk and Zaporozhe, and the ever-present military threat presented by the nomadic tribes.

Where exactly the northern part of the Road was situated, however, is unclear. The Chronicle does not elaborate. Miklyayev and other scholars have observed that many settlements and cemeteries from the period AD 500-1000 are situated several metres below the level of the present river Lovat, Usvyatya etc. A few years ago, Miklyayev suggested that the waterways in northwest Russia were lower during the Viking Age.

According to him, the reason for the low water level was the hot climate in that historical era. Also, even in much damper times - e.g. during the 18th century - the Lovat was, according to written testimony, not very useful for travellers because of its many rapids (Miklyayev 1992).

As a matter of fact, Russian scientists' meteorological and hydrological models indicate that a warmer climate may indeed result in dryer summers in the northwest Russian region (Budyko 1982:158-163, 237-243). There are, however, also other factors which may well have played a part in changing the river levels and river runoff in general. Among these, the post-glacial land uplift or depression and man's draining, logging, floating and irrigation must be mentioned. Also, conditions in the Volkhov valley, at lake Ilmen and the lower part of the Lovat have changed significantly since the Volkhov hydroelectric power station was constructed in the 1920's. As a whole, therefore, comparison between to-day's situation and the Viking Age is difficult.

In 1994, the "Aifur" crossed the Baltic Sea and started its voyage upstream in the Russian rivers. The route sailed was Sigtuna-Stockholm-Arholma-Mariehamn-Kökar-Föglö-Helsinki-Vyborg-St. Petersburg (river Neva)-Oreshek-Staraya Ladoga (river Volkhov)-Novgorod-Ryurikovo Gorodishche. Distance covered was 1382 km. Using both manpower and sailing, the ship's effective time was 307 hours, of which sailing was 192 1/2 hours and rowing (incl. manual towing) was 114 1/2 hours (Edberg 1994, 1995).

In 1996, the ship sailed further upstream. The upper part of the river Lovat was not navigable, due to a very low water level, and therefore portage over the first watershed became far too long to be practicable (horses were unfortunately not available). However, the crew succeeded in crossing the second watershed, between the rivers Kasplya and Dnepr, by putting the vessel on simple wheels, made on the spot.

The route sailed was Novgorod-Ryurikovo Gorodishche (lake Ilmen, river Lovat)-Kholm (land portage)-Sopki intermission-Uzvyaty (rivers Uzvyatya and Zapadnaya Dvina)-Surazh (river Kasplya)-Demidov (land portage)-Gnezdovo (river Dnepr)-Kiev-Svetlylahirske. Using manpower and sailing, the ship was under way for 72 days. Distance covered was 1568 km. Effective time was 415 1/2 hours, of which sailing was 113 1/2, manual towing was 264 hours and manual towing over land 38 hours. (The last part of the voyage, from Svetlylahirske to Kherson, was covered partly by non-authentic means and is therefore not reported here).

The combined distance covered, during the 113 days of effective Expedition voyage, was 2950 km. Average distance covered per day was 26,1 km. Average speed was 4,1 km/h. Forty-two per cent of the time was spent sailing, 53 per cent rowing and 5 per cent pulling the ship over land.

During the Baltic Sea crossing, on the lakes Ladoga and Ilmen and on the Dnepr dams, the "Aifur" proved to be a good sailing vessel before the wind and to a certain degree also capable of "beating". Rowing (and sometimes also sailing) downstream on the Dnepr also worked quite nicely. However, although the "Aifur" is fairly small, the rivers Lovat and Kasplya were navigable only with great effort and difficulty. The adverse stream on the shallow Lovat with its many rapids was especially demanding, and the upper part of that river was not navigable at all because of lack of water. The upper Kasplya was also very shallow and the other minor rivers in the Smolensk more or less dry.

Considering the low water levels - which as it seemed were below average but probably not exceptionally so - encountered by the "Aifur" Expedition, it is obvious that

only very light vessels would be suitable for river voyages on the northern part of the historic "Road from the Varangians to the Greeks". Even so, it is possible that the upper Lovat and the upper Kasplya may be navigable only in high-precipitation years (e.g. after very snowy winters) and probably only for a short period each spring. Even during high water conditions, the south-bound traveller on the Lovat (the river being over 500 km long between its source and lake Ilmen) would have to master the river's strong adverse current and many dozens of rapids. The rapids, of course, also present dangers for the downstream traveller.

If water levels in fact were even lower during the Viking Age, the Lovat could hardly have been of much use at all for the traveller, whether he was plying only between Novgorod and Kiev or arriving from foreign shores.

Up to now, Scandinavian scholars discussing Viking voyages to the East, have shown an obsession with ships. However, travelling by horse and sledge on the frozen plain and on the ice of rivers and marshes, long distances have been covered in relatively short time. According to Miklyayev, a horse and sledge winter trip from Novgorod to Smolensk was formerly made between six and twelve days (Miklyayev 1992). In comparison, the "Aifur" did not reach the Dnepr near Smolensk until after 30 days of mostly hard toil.

Several accounts of Viking Age winter travelling in Snorre Sturlasson's work (see examples in *Olav den heliges saga, Magnus den godes saga* and *Harald Sigurdssons saga*) support the "Winter version" of the Road from the Varangians to the Greeks.

Thus, from experience gathered during the experimental voyage with the "Aifur" and with other factors also considered, it is quite probable that most travellers would have preferred to cover this part of the Road on horseback or in wintertime, travelling by horse and sledge.

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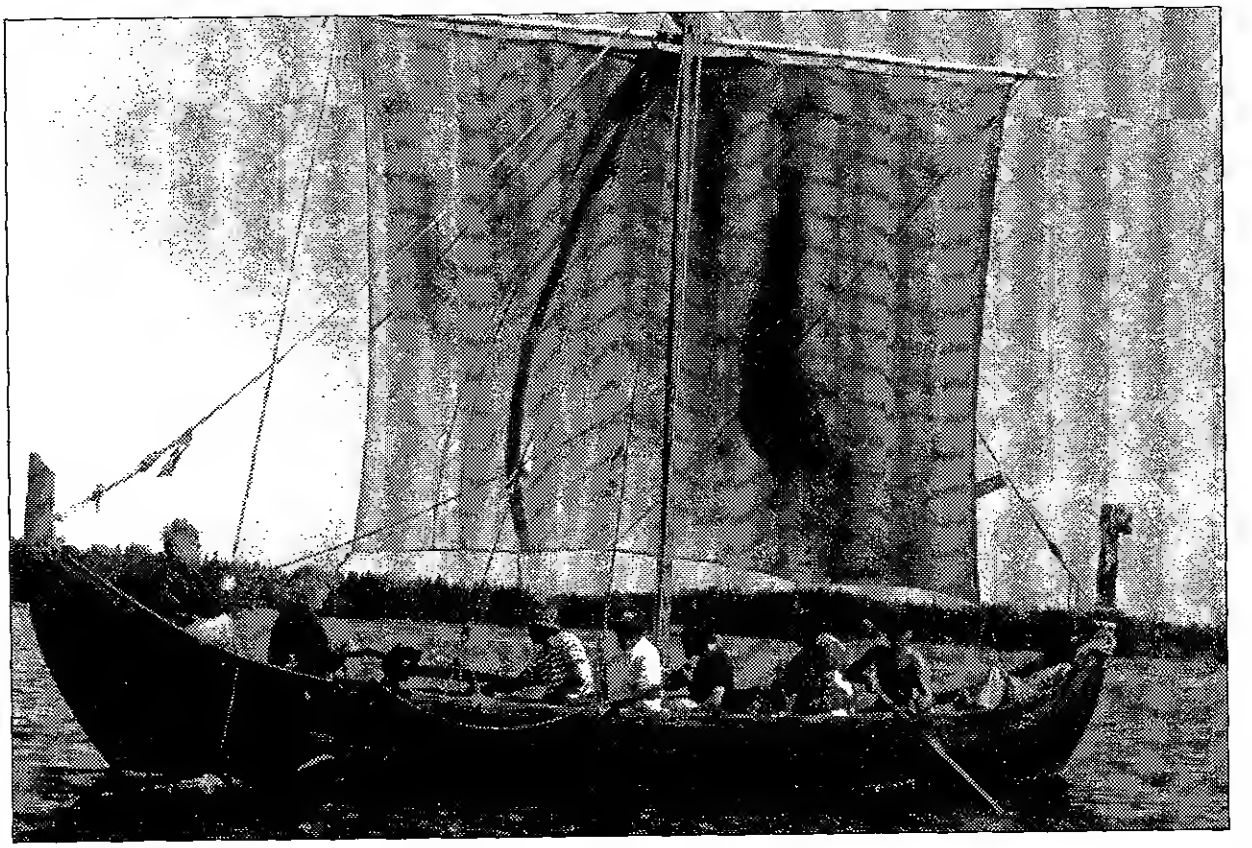

Fig. 1 The Aifur sailing for a weak breeze in Finnish waters, 1994. The crewman aft hands the leeward sheet and the braces. Two oarsmen on starbord are ready to row in support.

Fig. 2 Runic stone (detail) from Ekilla, Yttergrans socken, Uppland, commemorating a Swedish warrior who died in Ingvar's expedition to Kiev Rus and Georgia in the 1040's. About 25 of these "Ingvar's stones" are known in Sweden.

Fig. 3. The Aifur crew posing in front of a nostalgic sign-board in Kholm, Russia, mentioning the old "Road from the Varangians to the Greeks", known from the Russian Primary Chronicle. 1996.

Fig. 4. Crewmen, walking on the shore, towing the Aifur with ropes against the swift current of the River Lovat. 1996.

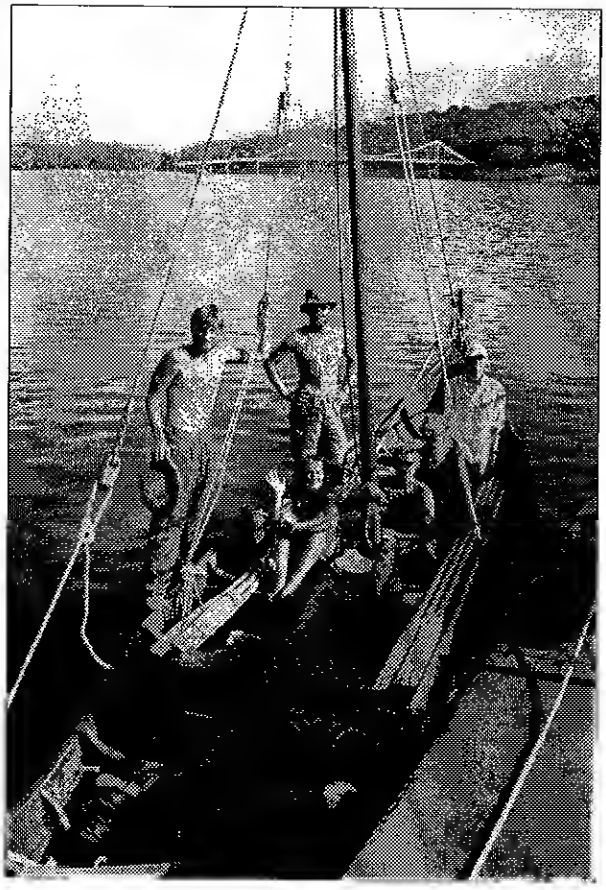

Fig. 5. The Aifur moored in Kiev, having followed in the wake of the legendary Oleg, who took power in Kiev in 882 and proclaimed it the mother of all Russian towns. 1996.

Expedition Holmgård

1994: Sigtuna - Novgorod
41 days, 1382 km
307 hours (sailing 63%, rowing 37%)
Average per day: 34 km
Average speed: 4,5 km/h

1996: (Novgorod - Cherson)
Novgorod - Sopki, Usvyati - Svetlyahirske
72 days, 1568 km
415 hours (sailing 27%, rowing 64%)
Average per day: 22 KM
Average speed: 3,85 km/h

1994 and 1996 Combined:
113 days, 2950 km
722 hours (sailing 42%, rowing 53%)
Average per day: 26 km
Average speed: 4,1 km

Fig. 6. Key data from the "Expediton Holmgard" with the Aifur in 1994 and 1996. Note: For more details and maps, please see the book "En vikingafärd genom Ryssland och Ukraina" (ed. R. Edberg, Sigtuna 1998, English and Russian summaries) which was published after this manuscript was completed.